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THE RELATIONSHIP BETWEEN HUMAN VALUES, BRIBE ACCEPTANCE, AND CONTRACT PRICE IN BUSINESS NEGOTIATION: AN EXPERIMENTAL ANALYSIS

Master's Thesis

Supervisor: Mark Kantšukov

TARTU 2018

Name and signature of supervisor.....

Allowed for defense on..... (date)

I have written this master's thesis independently. All viewpoints of other authors, literary sources and data from elsewhere used for writing this paper have been referenced.

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Abstract

This thesis attempts to restore the situation of business negotiation in a quasi framed field experiment. We recruit undergraduate and master students as our subjects, and conduct 43 sessions of negotiation experiment. The regression result demonstrates that the value of conservation is positively associated with bribe acceptance, while the value of self-transcendence exerts negative influences on bribe acceptance. On the other hand, values of openness to change and self-enhancement do not show any stable and significant results. In addition, the result also indicates the existence of fairness and reciprocity, and a concave relationship between bribe amount and contract price augment despite its immaturity.

Contents

A. Introduction

Corruption has been a trending issue for a long time, of which many politicians and academics have been devoted to investigating the true determinants and possible solutions. As corruption is defined as abuse of official power for private gain, it inevitably occurs when there is a division between cash flow rights and property control rights (Kaufmann & Siegelbaum, 1997). In other words, this division stimulates the business owner, who appreciates the cash flow rights of a certain property, to bribe the property owner, who has the control the usage of this property. Nevertheless, while widely admitted that corruption has an adverse effect on overall long-term economic development, one cannot argue that the influences of corruption or bribery are purely negative. For example, bribery may exert adverse influences on the third party's interests, resulting in inefficient outcomes; contrarily it also serves as an accelerator in strengthening corporate relationship and social ties. Therefore, it is essential to figure out the back-stage process and investigate the factors determining the occurrence of unethical behaviours.

The current literature explores this bribery mechanism mainly through three approaches, while each of them retains its own limitation respectively. First, the theoretical studies frame bribery situation in a game, so that predictions of equilibriums can be generated. However, it requires unrealizable assumptions of rationality and perfect information. Second, the conventional lab experimental method overcomes the limitation of rational assumption, while it observes participants' behaviours in a corrupt scenario and in an artificial context. As a result, the representativeness of the experiment may be questioned. The third approach is empirical research, which tries to depict the factors related to corruptive behaviours, using real-world cases. Although the limitations of last two approaches can be overcome, few companies are willing to disclose information of unethicality, resulting in little available data. Based on these three research

approaches, the determinants of bribery engagement can be categorized in two aspects: the external institutional environment (e.g. externality effects, scrutiny system, punishment scheme and accountability mechanism), and individual characteristics (e.g. age, gender, education backgrounds, wages and human values and beliefs). For this thesis, human values and beliefs are of particular interests, since the current research on this aspect is not comprehensive and complete. In addition, these elements are what organizations and people can influence; while for institutional improvements, it stipulates the efforts of governments at country or even universal levels.

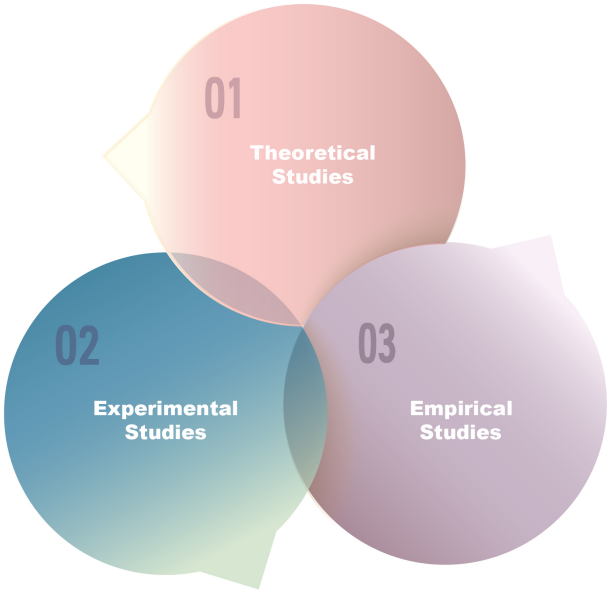
Therefore, with the objective of mitigating the limitations of three research approaches as aforementioned and by the inspirations from the literatures related to human values, this master thesis attempts to restore the situation of business negotiation in an analogous framed field experiment, and thereby captures the relationship between the human values and the bribe acceptance (stage 1) as well as the bribe amount and the ultimate contract price (stage 2). Despite that our experimental subjects are students, the game is designed so that the participants are unaware of being part of a bribery-related experiment. The participants will then decide whether to accept the bribe, and then the price concession in exchange for the bribe in a neutrally framed context. Thus, it can to some extent enhance the external validity of experimental approach. Concerning stage 1, we find that values of conservation and self-transcendence will exert significant influences on bribery acceptance. As for stage 2, the result is still very preliminary, but indicates that the price compromise an individual would like to make for an additional unit of bribe is of diminishing margin.

The content of the thesis will be developed as follow. First, a *Literature Review* of current research on bribe and business negotiation will be provided. It tends to identify the research gap and inspirations for the design of the experiment. Then, we will illustrate the details of experimental design, treatment and main

hypothesis in the section of *Experimental Methodology*. It is followed by the descriptive and econometric analysis of our samples, as in *Data Description and Estimation Results*. Subsequently, the section of *Limitations and Reflections* will demonstrate some restrictions of this thesis and potential improvements in the future. Finally, *Conclusion* will provide an overview of the thesis, and some implications of its results.

B. Literature Review

Despite no same bribery experiment of business negotiation conducted previously, there exists a great amount of empirical research of real-world case studies, surveys, and experimental work, combined with support of theoretical models, capturing the factors related to bribery behaviours and its influences on price bargaining results. Regarding these different types of models and approaches, this section is going to provide an overall review on three main areas (see Figure 1), including (B.1) theoretical studies, (B.2) experimental studies, and (B.3) empirical studies, which also serves as the primary basis for this master thesis.



• Research methods of studying bribery
(Figure 1)

B.1 Theoretical Studies

The theoretical studies deploy game-theoretic model, based on which researchers discuss individuals' bribery behaviours and thereby provide possible predictions on outcome equilibriums. A game is designed or presented, where there is more

than one decision-maker and each of them can affect the outcome. There are two fundamental assumptions: (1) all decision-makers are rational, resulting in the choice maximizing his or her utilities; (2) their belief on other players are correct, or it can be deduced through long time interactions from the past. Based on these assumptions, each play will calculate each benefits and costs of each action, while predicting others' reactions to his action, in order to optimize his action provided all other player are doing the same. It allows us to find mathematically the outcome or equilibriums of the game, where no one has the incentive to deviate unilaterally.

When employing game-theoretic model to frame real-world cases, two types of games, namely sequential and simultaneous game, are most widely used by researchers. With regard to the sequential game, parties of business negotiations move in different sequence, and thus tree diagram is used to present such extensive game. In addition, the later party has some knowledge about the earlier actions, although it need not be perfect information and might be very little knowledge of the actions of the earlier parties, such as the probability of the particular action. When the previous party knows that, he or she will predict what the later party will choose regarding each of his or her action, and then optimizing the payoff among these actions. Therefore, backward-induction is commonly deployed to find the equilibrium of the price without and with bribing.

For example, in order to capture the relationship between firm's bribery and bureaucratic harassment, Kaufmann and Wei (1999) use a simple Stackelberg game. The corruptible government official moves first to select the level of *harassment* (H), which can be tax assessment, fire safety requirement or delayed license release, in the aim to maximize his payoff (i.e. the *bribe* (B) received from the firm). Then, the firm chooses the bribe amount (B). The effects of bribe on reducing real harassment and thus improving firm's profit can be shown in the equation of firm's payoff. To maximize its payoff, the relationship between B and H

can be deduced, through simple first derivative and total differentiation. Specifically, the firm tends to bribe more if faced harassment is higher. Knowing that, the optimal choice for government official is to impose highest harassment up to the firm's tolerance. Obviously, the results contradict the "efficient grease" theory, and conclude a higher costs and lower capital value resulting from bribing.

Apart from that, simultaneous games, where some players will move simultaneously, are more representative in the context of business negotiation. For example, sealed-auction is one of the most recognized one. The procurement person serves like an auctioneer, and will collect the bids from sales persons from different companies, and then submit to his or her company (i.e. the buyer). In Burguet and Perry's (2007) research, the influences of bribery in a sealed auction occur in two types: first, the auctioneer (procurement person) may allow the sales person with lowest person to receive a price equal to the second lowest price; second, who gives the bribery may obtain the right of first refusal, which gives him an additional opportunity to resubmit his bid after knowing others' bids. In addition, Buchner et al. (2008) try to capture the relationship between bribery and contract price through the game where sales persons compete both on bids and bribes. Furthermore, based on these types of bribery, Cai, Henderson and Zhang (2013) propose a special effect of bribery especially in two-stage auction, where a few bidders are selected to enter a second round of bidding. Without corruption, this type of auction would induce higher sales price for properties that have few bidders, resulting in a negative selection on properties' unobservable. On the other hand, the existence of bribery will instead exert positive selection effect, since auction of hotter properties are converted into more corruptible auctions.

In these auction-type business negotiations, the role of procurement persons is limited to information distortion, while in reality and in the case large companies, the manager may not have enough time to check all the submitted bids, and then negotiate with chosen seller. Instead, there would be larger space for procurement

person to negotiate the contract. Therefore, more complicated game-theoretic models are established then to capture the bargaining situation where parties interact with each other. For instance, the Nash bargaining model (Nash, 1950; Kalai & Smordinsky, 1975) formulates the Nash Bargaining Product (equation 1), by maximizing which the bargaining equilibrium can be found.

$$Max_{\theta}(\Phi(\theta)) = Max_{\theta}((\Pi^{p} - D^{p})^{\alpha}(\Pi^{s} - D^{s})^{1-\alpha}) \qquad (1)$$

where p and s represents the two parties in the game; θ is the variable two parties argue on; Π^{p} and Π^{s} are payoff for two parties respectively, if they agree to cooperate during the negotiation; D^{p} and D^{s} are the threat points, which are the disagreement outcomes if the negotiation breaks; α and $1-\alpha$ are the respective bargaining power for two parties, and $0<\alpha<1$.

This bargaining model has been widely adopted by many researchers in exploring bribery context. For example, to alleviate the criminal commitment in a bribery-possible context where the criminal and the arresting official may cooperate with each other, Bowles and Garoupa (1997) explore the influences of deterrence of criminal sanction. Through different settings on fine tickets, they combine a sequential game with a bargaining process, where the detected criminal and the official negotiate on the bribe amount (i.e. θ in equation 1). This game-theoretic model allows us to figure out how the game will end with the optimized choices of both criminal and arresting police. As proved by Bowles and Garoupa (1997), the maximal fine for deterrence purpose (Becker, 1968) will not serve as the optimal solution in reducing commitment rate in the presence of corruption. This model has been further improved by Chang, Lai and Yang (2000) by incorporating of additional psychological costs of detected corrupted officials. Due to snowballing effects of social norms, the intensified fines would exert perverse impacts on criminal commitment, provided the status quo corruption is already widely spread. Later, they demonstrate that this effects of social norms on the punishment deterrence also applicable in a game-theoretic tax evasion model

(Chang & Lai, 2004).

As mentioned above, the Nash Bargaining Model should allow us to explore the influences of bribery on contract price in the context of business negotiation. Specifically, the business negotiation can be framed as a game, where there are two players, namely sales person and procurement person. They will bargain on the contract price of a certain product on behalf of their companies respectively. Nevertheless, there are two main difficulties and limitations. First, in this bargaining model, we have two endogenous variables to bargain. One is the bribe amount, and another the price after bribing. However, in the above models, only changes of exogenous settings are involved, such as fines or probability of detection, and then explore how these changes will influence the players' optimal choice in bargaining process. Another limitation is related to the assumptions of game-theoretic models that all decision makers are rational and with perfect information. In reality and especially in the bribery context, they are not realizable and the role of equity, trust and reciprocity should be discussed. For example, the tendency of inequity aversion generally exists, when people have inclination to avoid both advantageous and disadvantageous inequality (Fehr-Schmidt, 2001). It can to some extent explain the paradox of the dictator and ultimatum games. Additionally, when bribe often occurs when the enforceable licit contracts are vacant and both parties have good reasons to remain silent, it has to rely on the trust and reciprocity mechanism. As argued by Rabin (1993), incorporating fairness and reciprocation into games is essential, when altruist people are motivated to help those who help them and hurt those who hurt them. Similarly in business negotiation, two players will not only care about their own best choices based on pecuniary payoffs, but also considering the fairness when arguing on the contract price. It necessitates the experimental economics, which provides an opportunity to study the unobservable bribery behaviours in laboratory. The next section will provide more detailed overview of experimental studies.

B.2 Experimental Studies

Due to the immoral and unobservable nature of bribery activities, experiments become an indispensable approach to explore the situation of bribery in business negotiation. This section will provide an overview on the current research findings related to experiments in the context of business negotiation. First, we need to define an experimental taxonomy and thereby distinguish between laboratory and field experiments. As proposed by Harrison and List (2004), one should determine the field context of an experiment by six dimensions:

1. *The nature of the subject pool*: When student subjects can be taken as the standard subject pool, and "outdoor" participants are viewed as nonstandard;
2. *The nature of the information that the subjects bring to the task:* In the filed, the nonstandard subjects also bring certain information to their trading activities, while in laboratory settings the importance of this information is diminished, by design;
3. *The nature of commodity:* the distinctions between physical goods or actual services and artificially defined goods could also be a factor influencing behaviours;
4. *The nature of the task or trading rules applied:* since one would expect that field experience could play a major role in helping individuals develop heuristics for specific tasks, there exist differences between super-experienced and inexperienced subjects;
5. *The nature of the stakes:* as the stakes used in lab can be very different from those encountered in reality, it would result in different valuations and thereby behavioural changes; and
6. *The nature of the environment that the subject operates in:* the environment can provide a context, which would suggest strategies and heuristics while the lab, usually the classroom, would induce the sense of role playing.

Based on these six criteria, Harrison and List (2004) categorize experiments into

an incomplete classification scheme:

- *A conventional lab experiment* is the one adopts a standard subject pool, an abstract framing and an imposed set of rules;
- *An artefactual field experiment* is the same as a conventional lab experiment except for that it employs a nonstandard subject pool;
- *A framed field experiment* is the same as artefactual experiment but with field context in either commodity, task, or information set that the subjects can use;
- *A natural field experiment* is the same as a framed experiment while its embraces an environment where the subjects naturally undertake these tasks and where the subjects are unaware of being part of the experiment.

Although the conventional laboratory experiments are faced with limitation of predicting field behaviours, it is widely adopted by the current bribery-related research. For example, through employing students, researchers commonly construct an Ultimatum game, where the first mover is briber, and he decides the amount he wants to transfer to the second mover. The second mover represents the public officer, who decides whether to accept or reject that transfer. If accepted, the second mover's account will increase by more of the transferred, and he will choose between two options as reciprocity for that transfer. If rejected, both accounts remain the same. This game is designed such that players trust each other, both of their payoffs will increase (Gachter & Falk, 2002; Irlenbusch & Sliwka, 2005). It can to some extent confirm the existence of a reciprocity relationship, which is the fundamental feature of the bribery relationship. When assuming all players are rational, this sequential game will end with no cooperation and money transfer. However, it contradicts to the findings in most laboratory experiment. Additionally, in Abbink, Irlenbusch and Renner's (2002) ultimatum game, players are assigned with a certain probability, which simulates the risk of exposure and corresponded penalties. If any one of them is discovered, his payoff will be reduced. As a result, they find that the penalty threat will

significantly reduce the corruption. Another experimental treatment they apply is negative externalities on a third party, but no apparent influences are found. On the contrary, Barr and Serra (2009) argue that high negative externalities on an innocent third party will significantly reduce the likelihood of bribe offering and acceptance in a petty corruption scenario.

Furthermore, Serra (2012) also explore bribery by reframing the experiment, where the "government official" will first initiate whether and how much to demand from the "private citizens" in a corruptible transaction, and the "citizens" will decide whether and how much to bribe. By introducing different external accountability system, Serra (2012) argues that the combination of top-down and bottom-up monitoring will significantly mitigate the problem of corruption, although the probability of being fined is higher in top-down accountability system. Similar game is also used by Abbink et al. (2012), and the findings show that the benefits of asymmetric liability (i.e. only punish bribees while leaving bribers free) remain contentious when taking the consideration of potential retaliation from the bribees. On the contrary, other research demonstrates that the punishment does constrain the bribery-giving situation (Yu et al., 2014), while the amount of bribery will not be influenced by the possibility and severity of punishment (Serra, 2012). Furthermore, in the experiment of Chuah, Hoffmann, and Larner (2014), it is shown that values of harmony, face and desire to win, will influence participators' choice in negotiation between bribery-involved cooperation and competitive one. Other experimental research also results in similar significant influences of personal values on the corruption engagement (Belle & Cantarelli, 2017).

Nevertheless, the representativeness, or external validity of these lab experiments should be discussed, when corruption is usually perceived as illicit and immoral. As all these laboratory experiments are conducted when participants are informed of the truth of the experiments, they are provided with option to bribe and accept the bribery with giving back some favours. This is referred as loaded framing in

Abbink and Hennig-Schmidt's (2006) definition, while neutral framing refers to the situation when no "bribe" –wording is explicitly mentioned. They assert that different framing methods have no significant influence on bribery behaviours with 18 independent observations per treatment. However, more recent research demonstrates the existence of framing effects. For instance, Cox (2015) states a framing difference in cooperation games of public goods and suggests that gender exerts some influences on such framing effects. Hafner, Reif and Seebauer (2017) also assert the framing effects in the case of behaviours of physicians towards their patients, by comparing neutral and medical framings. Moreover, specifically for the bribery context, Barr and Serra (2009) also argue for the existence of differences between games framed in corruption scenario and in abstract terms, especially when subjects are bribe offers. They attempt to explain the previous insignificance by distinguish between immorality problem and artificiality of role-playing in loaded framing. On the one hand, by directly mentioning words of bribery, it may impel the participants to abstain from corrupt-like acts, which are considered as immoral. For instance, Banerjee (2016) argues that the social norms governing bribery framing and neutral framing are different, when the bribery framing triggers additional moral costs, resulting in reduced corruption engagement. On the other hand, framed in a corruption scenario also triggers the feeling of role-playing. The sense of artificiality will rather increase cooperative behaviours, and thereby distort the experimental consequences. In addition, this role-playing effect is more distinct when the subjects are students. They lack direct life experience of context alluded in the loaded frame compared with real public officials, as proposed by Bardsley (2005).

Due to the constraints of *conventional lab experiment* as mentioned above, it is necessary to go beyond and consider those more field-like experiments. The ideal one is *natural field experiment*, while little research has done it before. One example could be the experiment conducted by Armantier and Boly's (2008) in the context of bribing to graders for higher grades. It is framed when participants (the

teachers or graders), unaware of being part of a study on corruption (they are informed only after the experiment), have to decide whether or not to engage in bribery when receiving exam papers with bribe inside. Although for this master thesis, it is out of author's ability to conduct such natural field experiment, the idea of concealing the true aim of the experiment and thereby increasing the representativeness, can be referred to. In addition, we are going to use neutral framing instead of loaded framing commonly used in conventional lab experiment, in order to avoid participants' abstaining from immoral options. While the subjects will still remain to be students, who are the most available participants for the author, we deploy the same idea of Barr and Serra (2009) to mitigate the problem of artificiality. They let students take the role of "citizen" and "official" in the game and interact for the provision of public service, rather than "firm" and "official" with regard to granting a license. It solves the artificiality problem applying to those of "citizen" role, since students are also citizens and can think in the role of citizens. In our experiment, we then frame the situation as business negotiation over a contract, and students are invited to take the role of either "sales person" or "procurement person" on behalf of their companies. Also, this is quite feasible to invite them think in a position of corporate staff, which they are likely to be after graduation. Moreover, our experiment tends to be designed as *framed field experiment* despite that the subjects are student. The detailed analysis of the six dimensions of field context will be demonstrated after introducing experimental design and treatment in section C.4.

B.3 Empirical Studies

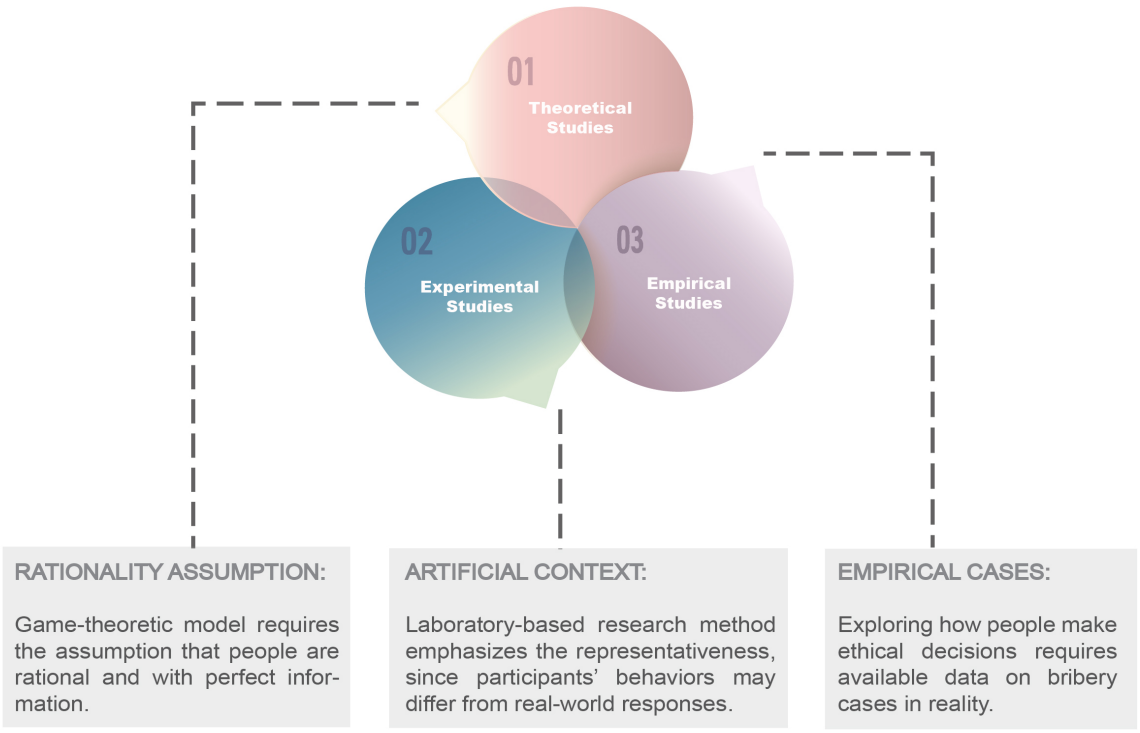
When the above experimental studies serve as the main basis of our master thesis, it lacks evidence from real-world data and may ignore the individual differences among participants. Thus, this part will provide an overview of empirical studies related to corruption, from both macro and micro perspectives. First, from a macro perspective, some researchers argue that corruption will increase the political

instability, which in turn reduces economic performance of a country especially for post-communist countries (Mo, 2001; Zagainova, 2007). On the other hand, others find that the corruption was corrected spontaneously in post-privatization period (Kaufmann & Siegelbaum, 1997). In addition, the national corruption level will also influence the firms' performance. For instance, employing a unique firm-level data set from 22 transition economies, Javorcik and Wei (2009) show that corruption will reduce the inward foreign direct investment. Furthermore, based on the three worldwide firm-level surveys, Kaufmann and Wei (1999) assert that firms tend to spend more management time and confront higher expenses when engaging bribery activities and bureaucratic negotiations. However, others argue that such relationship depends on the firm performance, the rank of the politicians bribed, as well as bribe-paying and bribe-taking country characteristics, in the research of 166 prominent bribery cases from 1971 to 2007 (Cheung, Rau & Stouraitis, 2012).

Apart from macroeconomic and firm-level evidence, one cannot ignore the individual characteristics, when people serve as the subjects and the decision makers of every bribery activity. For example, the decision-maker's own personalities may result in different moral judgment towards bribe, while overall cultural and conventional practice may hinder his or her behaviour intention. Based on the data from World Values Survey and the European Values Survey, Torgler and Valev (2006) find that age exerts reverse effects on justification of corruption, after controlling cohort effects. In addition, with the provincial panel data of China, Dong and Torgler (2013) find that higher educational attainment, higher wage and greater representation of women in the legislature will lead to distinctly less corruption. Similar conclusions are also proposed by Hakhverdian and Mayne (2012) in a micro-macro interactive study. Another factor can be the risk aversion level of participants. As proposed by Soreide (2009), the higher level of risk aversion will lead to the higher propensity to offer bribery, especially when gift giving is a common practice among the current business context, based on the survey of Norwegian firms, where top managers in 82 exporting firms responded

to about 100 questions on corruption. Although faced with the probability of getting caught and sanctioned, they may be concerned of other competitors offering bribery, which may undermine its position in obtaining the contract. Another research also finds that beliefs and values will influence individuals' ethical decision. For instance, individual factor of formalism and the surrounding cultural environment have significant correlation with ethical decisions in a survey of master and Ph.D. students (Langlais & Bent, 2013). Despite of these findings, the current empirical research on the firm- and individual- level is very limited due to the data availability.

B.4 Research Gap and Inspirations for the thesis



- Research Gap: Research methods and their respective limitation

(Figure 2)

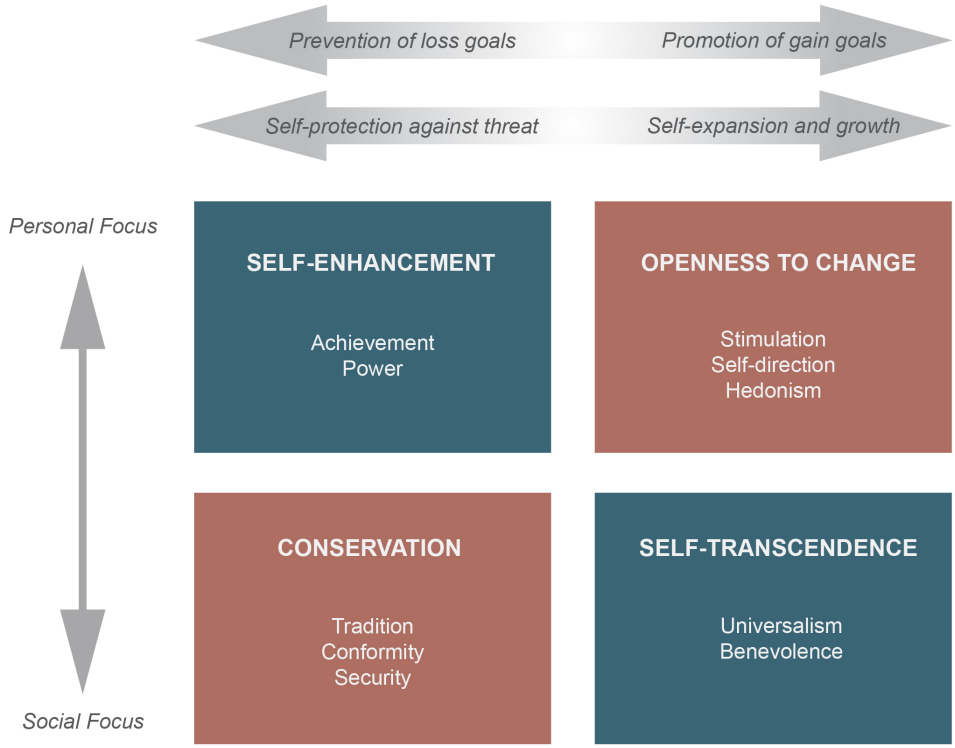
In the context of business negotiation, real-world case analysis has been widely appraised, while still faced with inevitable limitations on the access of the data. Especially regarding the bribery and corruption, with the inherent nature of

unethical and unobservable, it tends to be impossible to handle the general case for all companies without being exposed to the public. However, as mentioned by Moosmayer et al., (2012), the conventional laboratory experiments are usually subjected to framing bias and confounder limitations, which necessitates extra cautions on controlling experimental variables and on interpreting the outcomes. Moreover, when an individual is making a decision of bribing, one will not only consider maximizing his payoff as a rational and programmed robot. Instead, many factors, such as trust, reciprocity and individual personalities, will influence his decision-making process, resulting in infeasibility of mere theoretical approach. Figure 2 provides a summary of the limitation of each research method.

Therefore, this master thesis attempts to design a quasi framed field experiment, which is supposed to fulfil the research gap existed in current research methods: that is mitigating the problem of rationality assumption of game-theoretic model; unavailability of bribery data for real business negotiation; and the artificiality problem of conventional lab experiment.

Based on the literature discussed above, there are two stages of bribery activities: who are more likely to engage in corruption; and how bribe influences the ultimate contract price in the context of business negotiation. When some research focuses on the first stage, such as exploring the personal characteristics and cultural backgrounds, others concentrate on the second stage. For our experiment, we attempt to test both stages of bribe in the context of business negotiation. A questionnaire regarding basic backgrounds and personalities is required to fulfil after participants finish their negotiation sessions. In accordance to the findings of current literature mentioned above, questions about *Age*, *Gender*, *Education*, *Financial Condition*, and *Risk Aversion* will be included as control variables. In addition, there are also questions regarding *Human Values*, which serve as the main estimation variables, since the literature regarding the direct link to corruption still remains to be completed.

Concerning *Human Values*, there are different types of measures pertaining to different dimensions of personal traits and different national backgrounds. In this thesis, Schwartz's Theory of Basic Values for human beings will be deployed as a comprehensive and coherent measurement, which has been widely adopted for the research of management unethicality. It denotes 10 universally applicable motivational values, distinguished along two competing dimensions: *OPENNESS TO CHANGE* ([1]stimulation, [2]self-direction, [3]hedonism) versus *CONSERVATION* ([4]tradition, [5]conformity, [6]security), and *SELF-ENHANCEMENT* ([7]power, [8]achievement) versus *SELF-TRANSCENDENCE* ([9]universalism, [10]benevolence) (Schwartz, 1992, 2012). *OPENNESS TO CHANGE* captures values that underline independence of thought, action, and feelings and readiness for change, while CONSERVATION refers to values that emphasize order, self-restriction, preservation of the past, and resistance to change; *SELF-ENHANCEMENT* captures



Schwartz's Theory of Basic Values for human beings
Adopted from: Schwartz, 2012.
(Figure 3)

values that emphasize pursuit of one's own interests and relative success and dominance over others, while *SELF-TRANSCENDENCE* refers to values that emphasize concern for the welfare and interests of others. In addition, Schwartz (2012) also provides a dynamic structure of value relations (see Figure 3). *SELF-ENHANCEMENT* and *OPENNESS TO CHANGE* on the top panel mainly regulate the personal interests and characteristic of each individual. On the other hand, the values of bottom panel demonstrate how people relate themselves to the society and interdependent relationship. Also, by comparing left- and right-side of Figure 3, one can distinguish between self-protection values, when people seek to avoid losses and self-expansive values, when people pursue gains.

Based on research findings on individual motivations and ethical decisions, people with *SELF-ENHANCEMENT* value are more likely to engage in unethical behaviours than those with value of *SELF-TRANSCENDENCE* (Fritzsche & Oz, 2007; Crossan, Mazutis, & Seijts, 2013). Additionally, when bribery activities inevitably trigger negatively externalities on others, it is logical to assume people who care for others (i.e. altruism) are less likely to engage in corruption, compared to those who chase for individual interests and self-centred satisfaction. With regard to *CONSERVATION*, it is a typical characteristic of communist and post-communist societies, where corruption tends to be prevalent as asserted by most researchers. On the one hand, people with traditional value usually define themselves based on the interpersonal relationship and rely on such connections, especially when institutional settings (e.g. regulation, laws and contract power) are not standardized. As a result, reciprocity is promoted, and thereby bribery activities become common and predominant. However, other researchers argue that unethical practices involve breaking traditional patterns of behaviour and violating expectations and norms. Thus, people who value *CONSERVATION* seek to avoid conflicts and maintain social orders. When corruption is viewed as illicit, such values may lead to decreasing bribery engagement (Steenhaut & Kenhove, 2006). Thus, the influences of *CONSERVATION* still remain contentious if the

national differences are controlled (Shafer, Fukukawa & Lee, 2006). On the contrary, its competing value of *OPENNESS TO CHANGE* is likely to be congruent with an unethical disposition, since it provides the opportunity to experience some variety and stimulation through change from established patterns (Steenhaut & Kenhove, 2006).

Overall, Table 4 (see I. Appendices) demonstrates the main measurements in the questionnaire and brief descriptions respectively.

According to the literature of current bribery research and some inspirations from paper related to ethical decision-making, the following draft estimation functions are presented:

- Stage 1:

$$Bribe\_Accept = \alpha + \beta_1 Open + \beta_2 Consv + \beta_3 SeEnha + \beta_4 SeTransc + + \sum \gamma\ Control \quad (1)$$

- Stage 2:

$$Price\_Increase = a + \theta Bribe + b_1 Open + b_2 Consv + b_3 SeEnha + b_4 SeTransc + \sum c\ Control \quad (2)$$

Note:

Bribe_Accept: dummy variable, 0 if rejected and 1 if accepted;

Price_Increase: increase of contract price after cooperation (taking the bribe);

Open: openness to change;

Consv: conservation;

SeEnha: self-enhancement;

SeTransc: self-transcendence;

Bribe: bribing amount;

Control: control variables, including age, gender, education, financial condition and risk aversion;

α, a: constant term;

β, γ, θ, b, c: parameter of each variable respectively.

C. Experimental Methodology

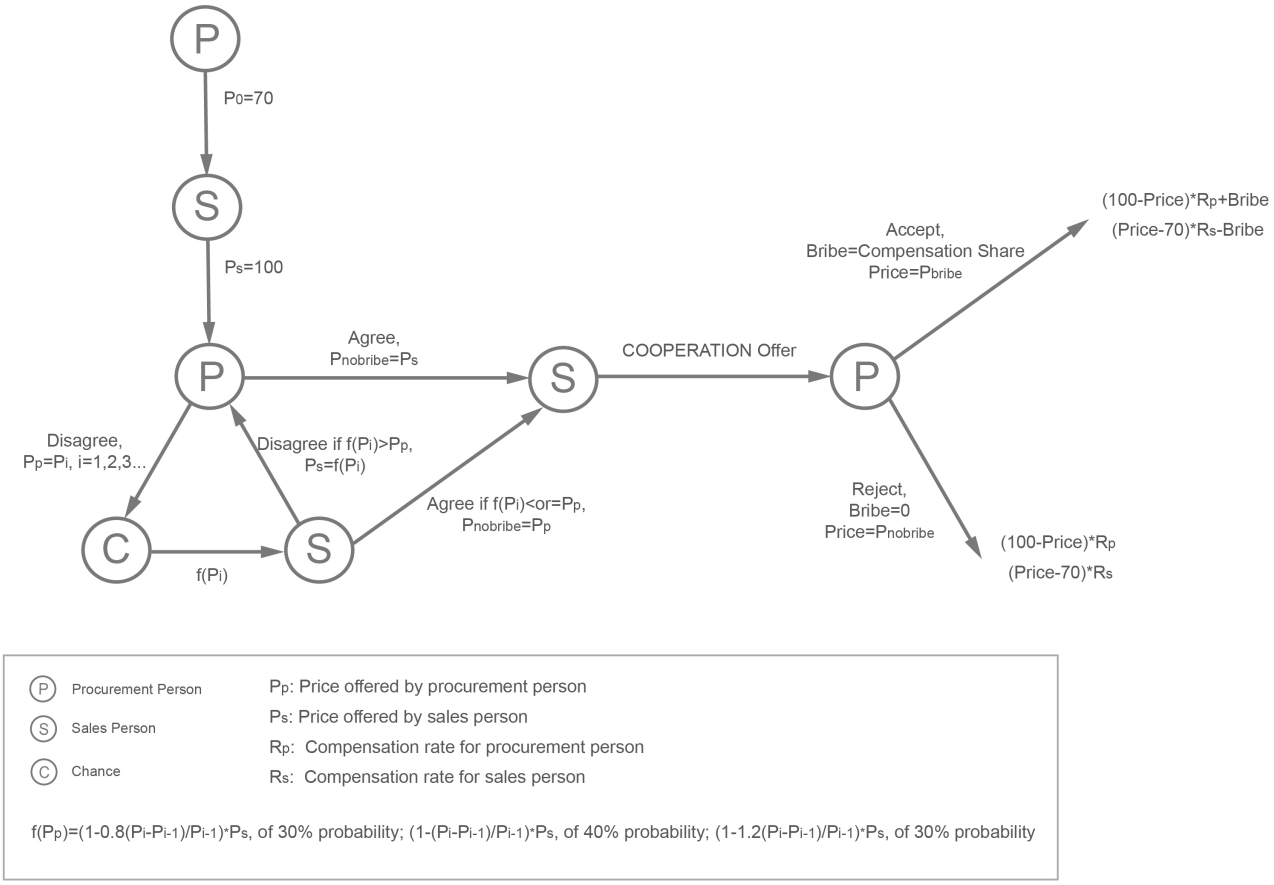
C.1 Experimental Design and Treatment

Consider the following situation: the firm A produces a semi-finished product, which is an important input for the firm B. So firm A decides to delegate the selling responsibility to its sales person. He will approach the procurement person of firm B and they will negotiate on the contract price of this product. In addition, their bonus will depend on the final price settled. Since only they two attend the contract negotiation session, there exist an opportunity for them to cooperate. The sales person may bribe the procuring person. If the procurement person accepts the bribe for private interest, he has to raise the contract price higher and let his company to afford such costs.

We take university students as the subjects and the experiment is neutrally framed. Each negotiation round will consist of two students as a pair, taking the role of procurement person and sales person respectively. In order to ensure the negotiation experiment will proceed as expected, all sales persons will be disguised by our research assistants. Their behaviours will be highly controlled and their price offers are determined by certain function f. Thus, all participants will take the role of procurement persons. In addition, the compensations for participation will depend on the certain rates and final settled contract price.

The experiment will restore the above situation in the following way (see the game tree in Figure 5): the bargaining zone will be provided and a virtual currency Gilbert (G) will be used to avoid real-world price associated with the product (Barr & Serra, 2009). The bargaining zone is defined as the price interval between the walk-away price of sales person, which is simplified as the costs of the semi-finished product (Cost=70G), and the highest price procurement party can accept, which is simplified as the price of end product (PriceEnd=100G). Additionally, the compensation rate for procurement person R_p is set at 0.2 Euro

for an extra Gilbert below 100G. The rate for sales person R_s is set at 2 Euro for an extra Gilbert above 70G in the experimental scenario.



Game Tree of Business Negotiation Experiment
Figure 5

At the beginning of the game, the procurement person is required to raise their initial offers as *Cost* of product (i.e. P_0=70G), and then for the sales person (i.e. research assistant), *PriceEnd* (i.e. P_s=100G) should be raised as his first response. Subsequently, the procurement person will decide whether to agree with 100G or disagree. If he agrees, the contract price will be 100G. If he disagrees, he then offers his counter price as $P_p=P_1$. Then, there is a chance move based on function f: $f(P_p)=(1-0.8(P_1-P_0)/P_0)*P_s$ with 30% probability; $f(P_p)= (1-0.8(P_1-P_0)/P_0)*P_s$ with 40% probability; and $f(P_p)= (1-1.2(P_1-P_0)/P_0)*P_s$ with 30% probability. If the $f(P_p)$ given by chance is equal or lower than P_1, the sales person (i.e. research assistant) will agree at price= P_1. If the $f(P_p)$ given higher than P_1, the sales person will disagree, and offer the counter price $P_s= f(P_p)$. Afterwards, the procurement person

will decide whether to agree or disagree with P_s. This process will continue until either of them agrees and settle the contract price as $P_{nobribe}$.

After achieving the first agreed contract price, the sales person (i.e. research assistant) will say that "The experimental session now has finished", and then start to reveal his own compensation rate. Since his compensation rate is much higher than the rate of his counterpart, the procurement person, he will propose that they can COOPERATE to raise the price higher. In return, he can share part of his additional compensation. If the procurement person accepts, he will propose the amount he wishes to share (i.e. Bribe) and the corresponding new contract price (P_{bribe}) that he thinks is appropriate. The payoffs of procurement and sales persons are ((100-P_{bribe})*0.2+Bribe) and ((P_{bribe}-70)*2-Bribe) respectively if bribe is accepted; and are (100-$P_{nobribe}$)*0.2 and ($P_{nobribe}$-70)*2 respectively if bribe is rejected.

The mechanism of this game depends on the asymmetric compensation rates between two paired students, is described in the Figure 6. Specifically, the aim of sales person is to bargain the contract price as high as possible. If negotiation reaches an agreement, he can gain R_p*(Price-70). On the other hand, the goal for procurement person in experimental scenario is to settle the price as low as possible, and his compensation will be R_s*(100-Price). In our experiments, R_s (2 Euro/Gilbert) is set deliberately higher than R_p (0.2 Euro/Gilbert), and thereby there exists an opportunity for COOPERATION between two parties. If contract price increases, the sales person will earn much more compensation than what the procurement person will lose. Therefore, the procurement person may agree to set the contract price higher than what agreed before, provided that the sales person shares part of his compensation in return. As a result, both parties can obtain higher compensation from the author compared to that no COOPERATION occurs. Therefore, this experiment can imitate the real case of business price negotiation in a bribery-possible context as following: The compensation shared by the sales

person can be taken as the bribe; Both of bribe-giving (sales person) and bribe-taking (procurement party) parties benefit by cooperation; the author will simulate the procuring company, which suffers the negative externalities of the bribe. When the company has to afford higher contract price without improved product quality, the author also has to pay more compensation to her participants with deficient research data in participants' perspective.

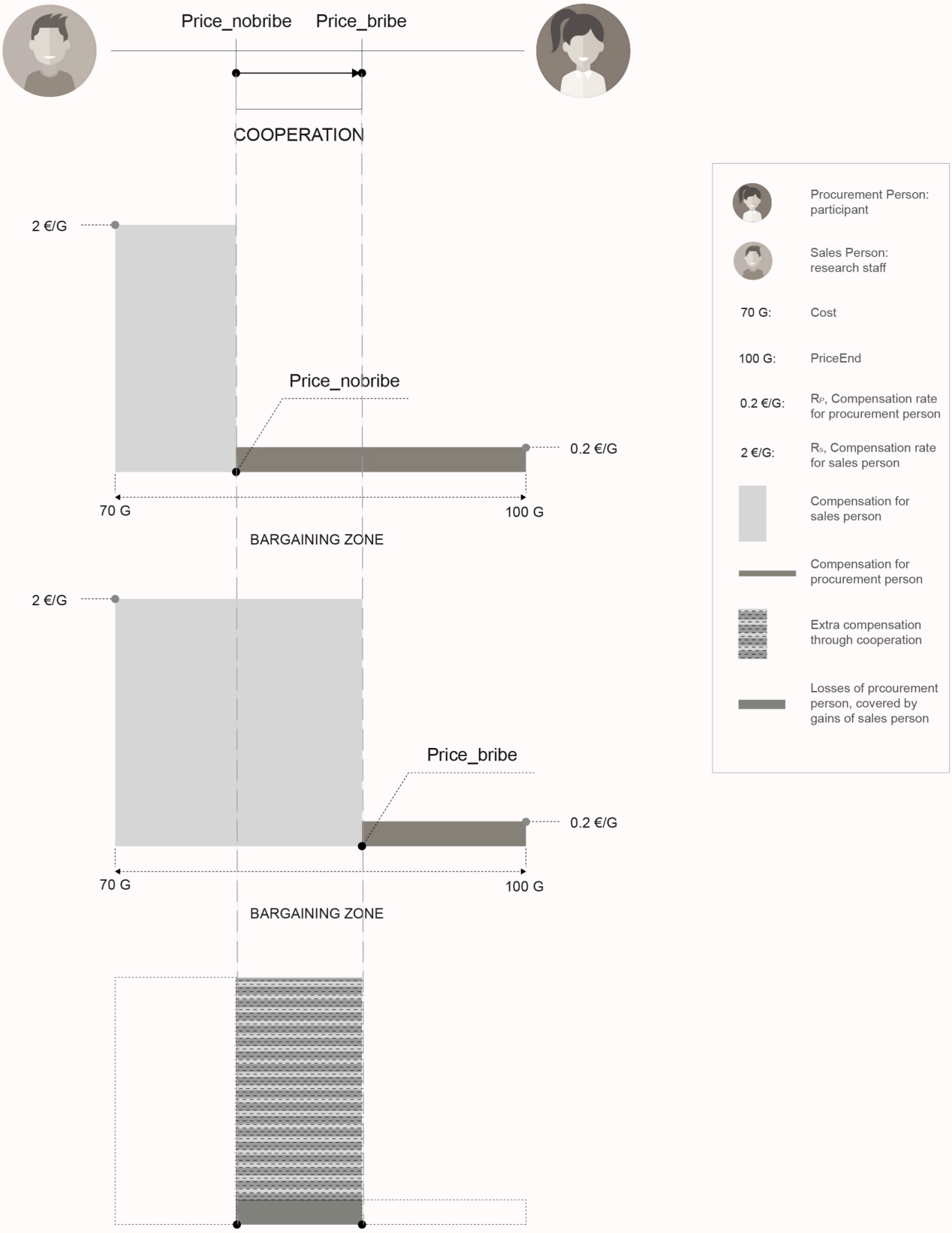

Price_nobribe
Price_bribe
COOPERATION
2 €/G
Price_nobribe
0.2 €/G
70 G
100 G
BARGAINING ZONE
2 €/G
Price_bribe
0.2 €/G
70 G
100 G
BARGAINING ZONE
Procurement Person: participant
Sales Person: research staff
70 G:
Cost
100 G:
PriceEnd
0.2 €/G:
RP, Compensation rate for procurement person
2 €/G:
RS, Compensation rate for sales person
Compensation for sales person
Compensation for procurement person
Extra compensation through cooperation
Losses of prcourement person, covered by gains of sales person

Figure 6

C.2 Experimental Arrangements

The whole experiment included two phases: first, the *promotion phase* was intended to distribute experimental information and call for participants. All subjects were recruited from undergraduate and master students of The University of Tartu and most of them majored in business related subjects. We sent emails about our experiment through department secretary, posted information on social media, and held short recruitment talks after lectures. Those who had interests would be invited to sign up on Doodle for the time they wishes to come.

Second phase was the *business negotiation experiment*. It was conducted in the School of Economics and Business Administration of University of Tartu. Before the experiment, the participant was invited to draw lots from a dark box, which would decide their roles either as a procurement person or a sales person, and their compensation rates. Although their role and compensation rate was definite, this approach introduced randomness of compensation rates in participants' perspective. The paired research assistant did the same process as the participant. Afterwards, the participant would be invited to sit in room A, and the research assistant would go to room B. I would then give the Participant Consent Form and Participant Script (see I. Appendices) to the participant. The following points would be verbally explained by me again to ensure that he could totally understand:

- "Since you are taking the role of procurement person, your objective is to argue the price as low as possible."

- "You are required to give the initial offer at 70G, which is defined as the bottom line of the bargaining zone."

- "Your compensation for participation will depend on the final agreement you can make with your counterpart. For example, if you agree at the price of 85G, you can earn additional (100-85)*0.2=3 Euros apart from

the show-up fee."

- "You have 10 minutes to negotiate, and if you cannot reach an agreement within 10 minutes, we will assume the contract fails. As a result, only the show-up fee will be remunerated."

Afterwards, I would go to room B and asked the research assistant to come to room A. Both of them would be presented with a computer respectively, and were told that you could use it to calculate numbers and as a timer. The computer for research assistant contained the programmed calculus (see I. Appendices for detailed codes), which served as the chance move in the game tree (Figure 5). Based on it, the research assistant would give his counter prices. They two would then conduct the negotiation face-to-face and alone in room A. After ten minutes, I would interrupt and they would tell me the agreed price. Based on this price, I will give the compensation. Finally, I invited them to fulfil the questionnaire.

C.3 Experimental Controls

As mentioned above, three research assistants are deployed as sales persons in order to retain the control over the experiment. To avoid subjective variation of different research assistants and of different negotiation sessions, several methods are deployed. First, their decisions of price and whether to agree with their counterparts' prices are based on function f. In addition, the research assistants are required to follow the text script (see I. Appendices), which contains the specific sentences they are expected to say in the negotiation experiment. Trough this approach, we can alleviate the endogenous problem caused by indeterminate behaviours, and thus improve the comparability between different pairs (Berninghaus et al., 2013). Moreover, when cooperation or corruption is a reciprocity process established on trust, the dynamic facial expression of sales persons also matters. As asserted by Morioka et al. (2015), smile accompanied with positive verbal expressions will engender higher trust tendency, while the

presence of negative verbal expressions will trigger totally inversed effects. Besides, people will also deduce others' personalities and trustworthiness based on their manifested static physical features, such as appearance and clothing (Naumann et al., 2009). Therefore, the sales persons, i.e. our research assistants, will be trained to follow unified facial expression rules and dressing codes in order to avoid potential distortion.

Apart from the individual factors of research assistants, two elements of the institutional elements regarding bribery should also be considered. First, as demonstrated by previous research, the negative externalities on the third party will significantly influence the bribery behaviours. In our experiment, despite no explicitly statement, it is inherently endowed. Since the experiment is neutrally framed, accepting bribe (i.e. share of additional compensation) and changing contact price are not expected as normal experimental behaviours. In other words, if the participant agrees to cooperate with the research assistant and make a false price declaration, the interests of the author are impaired as higher compensations are paid with less accurate research data. Second, since the scrutiny and punishment systems will not serve as a key treatment for the experiment, they are not stated explicitly. Additionally, when this experiment is announced as research collaborated with the professor and the master student, participants will spontaneously make an assumption of adverse results if this unethical behaviour is detected. Also, without knowing specific probability of exposure and amount of losses, the situation confronted by participants is under uncertainty instead of risk. It suppresses complex quantitative calculations, and different utility engendered by different individuals. Furthermore, uncertainty situations are more neutral in terms of genders, as women are more risk-averse in risky gambles (Sarin & Wieland, 2016). Despite that punishment is one of most important features related to corruption, we can temporarily skip this problem in this thesis.

C.4 Field Context of Business Negotiation Experiment

As we discussed in *B.2 Experimental Studies*, the experiment of this thesis aims to overcome some limitations of conventional laboratory experiment, and thereby resemble a framed field experiment, except for standard subject pool. This section will analyse the six dimensions as proposed by Harrison and List (2004) to determine the field context of our business negotiation experiment.

First, *the nature of the subject pool* is the standard in our experiment, and it is the same as in conventional laboratory experiment. On the one hand, it will be always better if we can go to field and recruit the target population as the nonstandard subjects who are real procurement persons in position. For example, Haigh and List (2004) use traders at the Chicago Board of Trade. On the other hand, the students are the most available participants for the author. We recruit international students from University of Tartu, which allows for some socio-demographic variations. In addition, despite that the education backgrounds of our participants are quite concentrated (most of them are of business-related majors, and at undergraduate or master education level), one can argue that these cluster of people have great potential to become sales or procurement persons in company, compared to those with other majors or education levels.

The second dimension is *the nature of the information that subjects bring to the task*. While the nonstandard subject pool may bring experience with the commodity or the task to the experiment, students do not have much experience of business negotiation and comprehension of business ethics. For instance, when situated in an experiment, real procurement persons will automatically associate bribe taking with severity of corporate profits shrink, the demise of career, the serious legal repercussion, and the correlated exposure risks. However, accepting bribe and cheating on experimenter are not expected by the students in an experiment and thereby this lack of information triggers uncertainty and ambivalence. Those subjects who are risk aversion may require an additional risk premium when considering taking the bribe in the experimental scenario, apart

from the risk premium required in the real situation. This will weaken the experimental result with respect to representativeness, so its interpretations should be very cautious.

Third, *the nature of commodity* refers to the artificiality of the goods or serves used in the experiment. In our experiment, instead of physical good, we employ the abstractly defined good (i.e. the contract of an artificial product), which has been widely used in experiments since Chamberlin (1948) and Smith (1962). Although it suffers criticism on influencing participants' behaviours, one cannot reject the field characteristic of an experiment merely by not having an actual good. For example, in the research of Bateman et al. (1997), subjects are required to elicit valuations over pizza and dessert vouchers for a local restaurant. Despite that these commodities were not actual pizza or dessert themselves, vouchers convey the possession of them, which are not abstract. Similarly in our case, the contract itself is abstract, while the subjects are entitled to real monetary compensation based on contract price settlement, which is not abstract.

The fourth field characteristic is *the nature of the task or trading rules applied*. A crucial question is whether the task the subjects are asked to perform will develop successful heuristics. For example, the task of the conventional lab experiment usually seems to be abstract to its subjects and thereby it's meaningless for them to think about how would they make decisions were they to find themselves in such a situation. In addition, there is less control over how the subjects themselves will impose on the abstract experimental task. With regards to our case, at the first glance, the task for the procurement person is to squeeze down the contract price and reach an agreement with their counterpart, which is relatively abstract for students. However, when we test for the hypotheses, the real task at the backstage is whether to accept COOPERATION and cheat on the experimenter. In addition, the artificial context of business negotiation applied in our experiment can be taken as surrounding environment, based on which it makes sense to the

participant if the sales person proposes the COOPERATION suggestion. Also, the employment of research assistants as sales party will help our subjects to fully understand all relevant aspects of this task.

Concerning fifth dimension, *the nature of the stakes*, the valuation process subjects will differ when encountered different level of stakes in the field and lab. For instance, subjects may not value prices seriously when it is below one dollar, while tens of or hundred of dollars will lead to different valuation approach (Harrison & List, 2004). Thus, biased results are expected when an experiment involves trivial stakes. There are three main approaches aiming to alleviate this problem. First, one may let subjects earn real stakes in the lab (Rutström & Williams, 2000). This is already applied in our experiment, and the average stakes involved are 3 euro without cooperation and much more with cooperation. The second solution is to run experiment in developing countries so that the stakes constitute for larger proportion of the average income (Cameron 1999). When communicating with our participants after the experiment, we find that one of the most important reasons for the student to choose studying in University of Tartu is that the education quality is good when the tuition fee and living expenses in Estonia is relatively cheap compared with other European countries. It to some extent allows us to assume that our subjects are not that rich, and the stakes involved does count for a fraction of their daily expenses. In addition, we also record their financial conditions in the questionnaire (see I. Appendices, Table 4), and its influences will be analysed in the section D. Last, Bohm (1994) emphasizes the significance of recruiting the subjects who care about the task and thereby valuing stakes seriously. In our case, all subjected are recruited on a voluntary basis so that we can suppose that they are not indifferent to the experimental "tasks". However, as mentioned above, the real task is about COOPERATION acceptance. If participants do not participate for the monetary compensation at the beginning, whether to earn more money may not enter their valuation process. It remains contentious if these types of participants will persist in the same non-monetary objective when

chasing their careers.

The last field characteristic is *the nature of the environment that the subject operates in*. Usually in a laboratory experiment, the environment is fully controlled and the stressors that one is interested will vary and is emphasized. However, this will not always happen in reality, since a lot of other factors will draw the attention of individuals, and thereby their responses to the stressors may change. With respect to our experiment, participants are settled in a classroom alone, where the physical surroundings resemble a typical place for a business negotiation. In addition, the human intervention between the participant and research assistant is nature and there is no monitor of their behaviours. Furthermore, the real task is carried out when the participants are unaware of being part of the experiment. In other words, when offered with COOPERATION suggestion, they suppose the experiment of price negotiation has already finished, and COOPERATION is something outside the experiment. Therefore, the field context in our case demonstrates good performance on the nature of environment.

Overall, we can define our business negotiation experiment as a quasi framed field experiment according to Harrison and List's (2004) six field characteristics. Despite that the subjects are standard and they bring little related information into the experiment, the commodity and task that they can use, and the stakes and environment embraced are more or less of field features.

C.5 Hypotheses

Based on the analysis of literature review (B.4 Research Gap and Inspirations for the thesis), we develop the following hypotheses to be tested through the experiment:

Hypothesis 1: Individuals with higher level of OPENNESS TO CHANGE are more likely to accept the bribe (cooperate).

Hypothesis 2: Individuals with higher level of CONSERVATION are more likely to accept the bribe (cooperate). (In literature review mentioned above, there are two contradictory views on the influences of value of conservation, so we make this hypothesis for now.)

Hypothesis 3: Individuals with higher level of SELF-ENHANCEMENT are more likely to accept the bribe (cooperate).

Hypothesis 4: Individuals with lower level of SELF-TRANSCENDECNCE are more likely to accept the bribe (cooperate).

Hypothesis 5: The BRIBE amount and contract PRICE are positively correlated in the perspective of the participant.

D. Data Description and Estimation Results

In total, we hold 43 sessions of business negotiation, and among them 17 participants accept bribe and agree to cooperate. Figure 7 demonstrates the comparison between the price before cooperation (Price_nobribe), and price after cooperation (Price_bribe) for each session. The sessions that only have Price_nobribe are those when the participant reject to cooperate. In addition, when cooperation will benefit both parties' personal interests, Figure 8 captures the additional compensation of sales person (i.e. (Price_bribe-Price_nobribe)*R_s) due to cooperation and the share (i.e. Bribe) the procurement requires.

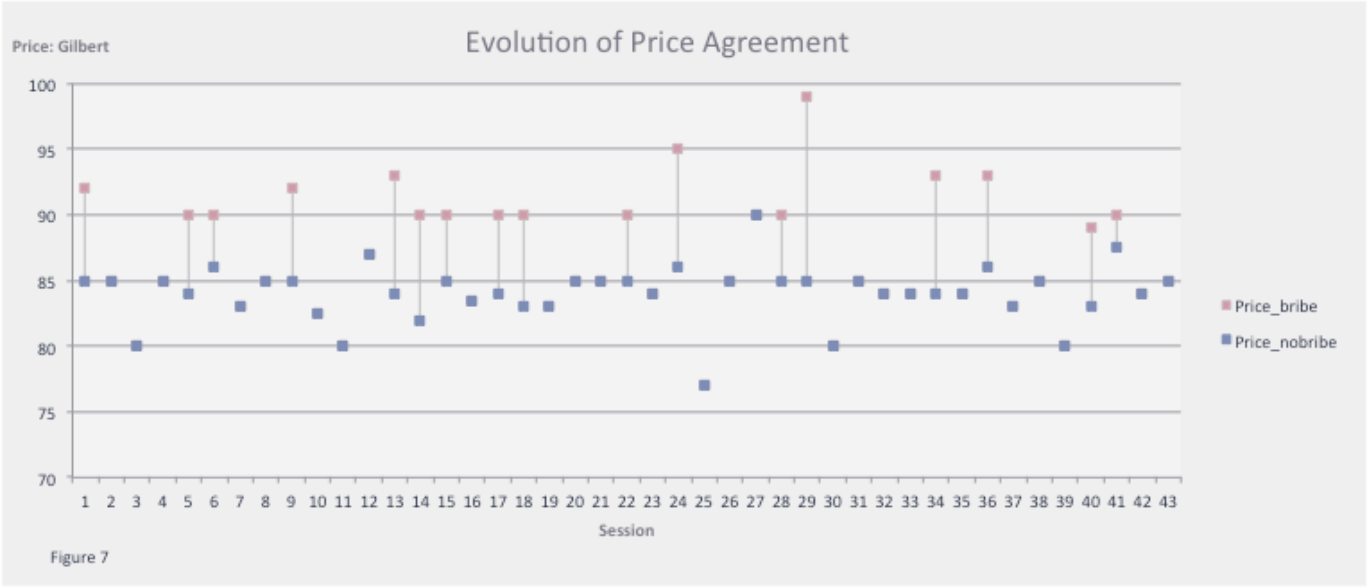


Figure 7

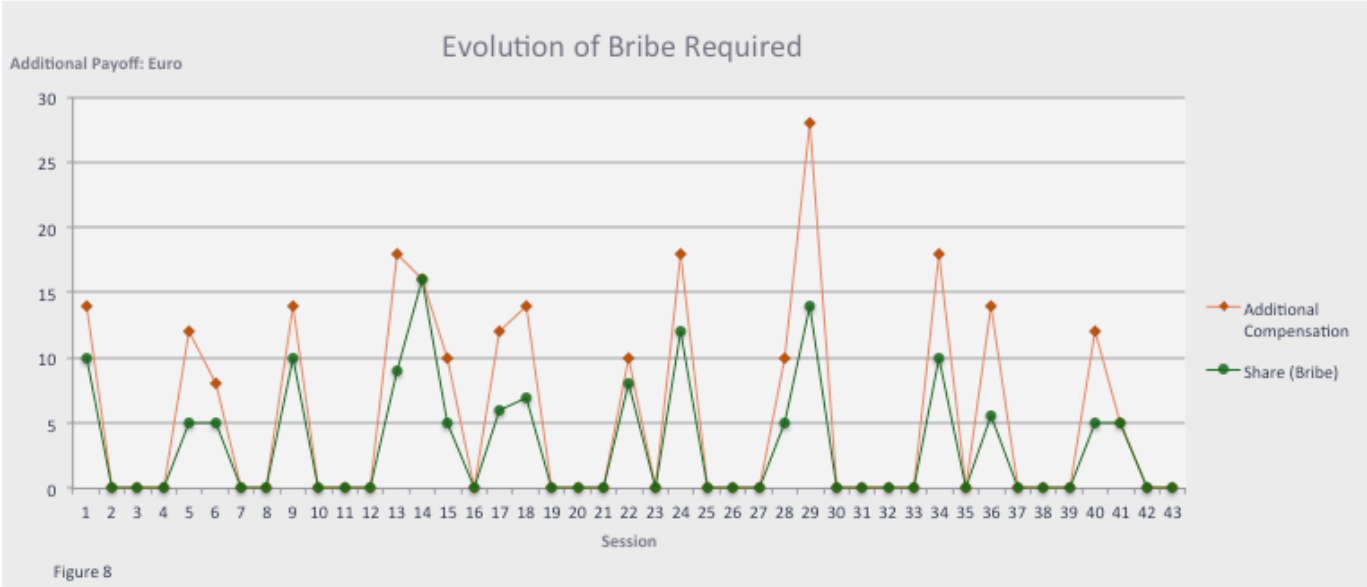


Figure 8

In theory, the equilibrium of the game and the optimal choice for the participants is to settle contract price at 100G, the upper limit, and ask for the entire amount of the additional compensation. However, in our experiment, it is apparent that most participants will not require the entire amount of the additional compensations from the research assistants except for session 14 and 41, although in this game it is totally decided by them. Thus, it verifies that the invalidity of rationality assumption in reality. It also to some extent demonstrates the existence of fairness and reciprocity, although in a neutrally framed experiment, the problem moral cost is mitigated. The average additional compensation earned by sales persons is 13.7 euro and the average share or bribe is 8.1 euro, for the samples with cooperation achieved. The participants may ask for more than half of the additional compensation, but the sense of fairness and willingness to reciprocate their counterparts lead to average increase of 5.6 euro regarding research assistants' payoffs.

D.1 Stage 1: Who Are More Likely To Accept The Bribe

Before conducting econometric analysis and estimation, we first present a summary of variables, categorized by whether participants agree to take bribe and cooperate (see Table 9). The p values in this table indicate whether the means of two categories significantly differ based on analysis of variance.

CASE SUMMARIES

Bribe_Accept	stats	P_nobribe	Age	Gender	Educ	Finance	RiskAverse	Open	Consv	SeEnha	SeTransc
	p-value	0.1285	0.5595	0.0863	0.1202	0.5626	0.5761	0.4489	0.0895	0.9752	0.0331
0	mean	83.61538	1994.846	0.5	0.538462	1.192308	2.324176	4.564103	3.525641	3.817308	5.083333
	sd	2.597336	3.145693	0.509902	0.508391	0.895287	0.687566	0.629068	0.837579	0.870511	0.554777
	N	26	26	26	26	26	26	26	26	26	26
1	mean	84.67647	1994.176	0.764706	0.294118	1.352941	2.445378	4.411765	3.931373	3.808824	4.671569
	sd	1.333946	4.319075	0.437237	0.469668	0.86177	0.692309	0.653829	0.580525	0.8639	0.661747
	N	17	17	17	17	17	17	17	17	17	17
Total	mean	84.03488	1994.581	0.604651	0.441861	1.255814	2.372093	4.503876	3.686047	3.813953	4.920543
	sd	2.229124	3.620264	0.494712	0.502486	0.875405	0.683798	0.635677	0.765673	0.857552	0.625715
	N	43	43	43	43	43	43	43	43	43	43

(Table 9)

Bribe_Accept is a dummy variable, which equals 1 if the participant accepts the bribe and cooperates, and equals 0 otherwise. *P_nobribe* is the price agreed before bribe or cooperation is offered. *Age* refers to the year of birth. *Gender* equals 1 for male and 0 for female. *Educ* is the education level of the participant, and equals 1 if at master level and 0 if at undergraduate level. *Finance* measures the financial condition, and it equals 0 if described as "not reliable"; equals 1 if described as "I am not sure"; and equals 2 if described as "reliable and regular". *RiskAverse* measures the level of risk aversion. It simply takes the average of seven likert scale questions, when reversed-scales questions (question 1 to 5) are calculated as 5 minus the scale. *Open* is the level of openness to change, which embraces human values of stimulation, self-direction and hedonism. We first take the average of the scales for each human value and then the average of average is calculated as openness to change. The method applies on *Consv* (conservation), *SeEnha* (self-enhancement) and *SeTransc* (self-transcendence). The author realizes that it might be appropriate to use principle component analysis or factor analysis, when generating the measurements for these four variables. However, this approach is based on correlations and covariance, while we only obtain 43 observations. Thus, average method is deployed here.

As mentioned above, the sales persons (i.e. research assistants) will bargain based on the prices given by a programmed calculus, in order to avoid subjective variations. This confirmed as p-value of *P_nobribe* is 0.1285, indicating that the prices agreed before cooperation offer are comparable between cooperation and non-cooperation groups. With regard to control variables, there is no significant difference between two groups on *Age*, *Education*, *Financial Condition, and Risk Aversion*, and *Gender* seems to have some influences at 10 percent significance level. Concerning the key independent variables of the thesis, the means of *Conservation* and *Self-Transcendence* of two groups differ, at 10 percent and 5 percent significance levels respectively. On the other hand, the values of *Openness to Change* and *Self-Enhancement* are not of significant difference between groups.

Nevertheless, we need to further check the partial correlation of each variable, in order to decide its relationship with the binary dependent variable: *Bribe Acceptance*. Table 10 demonstrates the logistics regression result.

Estimation Results for Business Negotiation Experiment: Stage 1

	(1) Bribe_Accept	(2) Bribe_Accept	(3) Bribe_Accept	(4) Bribe_Accept
Bribe_Accept				
Age	−0.184	−0.198	−0.256	−0.259+
	(0.196)	(0.136)	(0.123)	(0.095)
Gender	0.640	0.821	0.959	1.201
	(0.492)	(0.352)	(0.368)	(0.237)
Education	−1.527	−1.492	−2.693+	−2.300+
	(0.151)	(0.158)	(0.077)	(0.092)
Finance	0.503	0.554	0.386	0.506
	(0.342)	(0.276)	(0.472)	(0.317)
RiskAverse	−0.242	−0.145	−0.328	−0.106
	(0.761)	(0.833)	(0.710)	(0.891)
OpennessTo~e	−0.0576		−0.185	
	(0.937)		(0.802)	
Conservation	1.804*	1.724*	2.200*	1.954*
	(0.027)	(0.028)	(0.021)	(0.025)
SelfEnhanc~t	−0.299		−0.493	
	(0.571)		(0.411)	
SelfTransc~e	−2.084*	−1.962*	−2.284*	−2.053*
	(0.032)	(0.033)	(0.025)	(0.029)
Assi_1			0.981	0.531
			(0.471)	(0.657)
Assi_2			1.684	1.298
			(0.246)	(0.323)
_cons	372.1	397.7	515.6	517.2+
	(0.189)	(0.134)	(0.119)	(0.094)
N	43	43	43	43
pseudo R-sq	0.318	0.312	0.344	0.330

p-values in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

(Table 10)

Comparing estimation function (1) and (2) with function (3) and (4) in Table 10, we include the fixed effect of research assistants in later two functions. Since we employ three assistants, and they conduct 10, 14 and 19 sessions respectively, two dummy variables *Assi_1* and *Assi_2* are used to represent them. Overall, we find that control variables of *Gender*, *Financial Condition* and *Risk Aversion* do not exert any exert significant influences on *Bribe Acceptance*. It contradicts to most research findings as discussed in literature review. However, as the stakes or compensations involved are quite small and there is no specific exposure risks applied, the interpretation of *Financial Condition* and *Risk Aversion* remains

contentious. Concerning *Age*, its significance in estimation function (4) (Table 10) is relatively weak and unstable. The possible reasons might be the age variation among our participants who are students is little, and the cohort effects (i.e. the effects to a person by the social group such as temporal experience or common life experience, as opposed the effects of age) cannot be fully controlled. In addition, *Education* has influences on *Bribe Acceptance* at 10 percent significance level if we include the fixed effect of research assistants. Despite weak statistical significance, it indicates that master students are more likely to accept bribe and cooperate compared to undergraduate students. However, further examination is required as the education backgrounds of our subjects are quite limited, and thereby it cannot be generalized to other education levels.

With regard to the main regressors of the thesis, *Openness To Change* and *Self-Enhancement* do not have considerable effects on individuals' acceptance of bribe. Thus, the hypothesis 1 and hypothesis 3 are not valid. On the other hand, *Conservation* and *Self-Transcendence* demonstrate their stable significance on the dependent variable. For example, people with higher level of *Conservation* are more likely to accept bribe, which is consistent with hypothesis 2. Hence, It can be inferred that for a conservative individual, the propensity to rely on interpersonal relationship in a conventional society stipulates stronger intention than the inclination to comply with regulation and rules. In addition, *Self-Transcendence* is negatively correlated to *Bribe Acceptance*, the same as stated in hypothesis 4. Moreover, it is quite interesting to find that these two significant motivational dimensions are of social focus, while the other insignificant two are of personal focus (see Figure 3 in section B.4). So it may be important for future research to distinguish between institutional influences and individual motivations when considering ethical decisions.

D.2 Stage 2: How Bribe Influences The Ultimate Contract Price

After capturing the factors determining participants' decision on *Bribe Acceptance*,

we then explore how bribe amount will influence contract price settlement. The analysis below is very preliminary, since we have made several assumptions in the game, which renders the situation differentiated from the business negotiation in reality. Details will be analysed in section E. Limitations and Reflections.

Estimation Results for Business Negotiation Experiment: Stage 2

	(1) Price_Incr~e	(2) Price_Incr~e	(3) Price_Incr~e	(4) PRICE	(5) PRICE	(6) PRICE
BRIBE	0.0135***	0.0137***	0.0133***	1.536***	1.502***	1.491***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BRIBE_2	-0.000366*	-0.000388*	-0.000349+	-0.0577*	-0.0561+	-0.0541*
	(0.049)	(0.038)	(0.065)	(0.046)	(0.098)	(0.013)
Age	0.000153	0.000300		-0.0511	-0.112	
	(0.820)	(0.688)		(0.709)	(0.439)	
Gender	0.00274	0.00186		-0.992	-0.813	
	(0.549)	(0.650)		(0.258)	(0.328)	
Education	0.00326	0.00605		-1.118	-2.157	
	(0.562)	(0.439)		(0.326)	(0.111)	
Finance	0.00187	0.00216		0.0231	-0.0894	
	(0.309)	(0.307)		(0.959)	(0.856)	
RiskAverse	-0.0000855	0.000269		0.621	0.467	
	(0.985)	(0.948)		(0.367)	(0.521)	
OpennessTo~e	-0.000521	0.0000830		0.379	0.199	
	(0.869)	(0.979)		(0.687)	(0.835)	
Conservation	0.000847	0.000338		-0.224	0.00124	
	(0.789)	(0.908)		(0.720)	(0.998)	
SelfEnhanc~t	-0.00295+	-0.00285	-0.00368	-0.775	-0.961*	-0.650
	(0.076)	(0.204)	(0.106)	(0.114)	(0.048)	(0.108)
SelfTransc~e	0.000850	0.00118		0.0800	-0.0943	
	(0.837)	(0.776)		(0.918)	(0.893)	
Assi_1		-0.00132			1.268	
		(0.861)			(0.383)	
Assi_2		-0.00433			1.395	
		(0.514)			(0.194)	
_cons	-0.304	-0.600	0.0140	186.8	309.3	86.10***
	(0.820)	(0.687)	(0.109)	(0.496)	(0.286)	(0.000)
N	43	43	43	43	43	43
R-sq	0.934	0.935	0.931	0.790	0.799	0.766

p-values in parentheses
+ p<0.10, * p<0.05, ** p<0.01, *** p<0.001

(Table 11)

From Table 11, the dependent variable of estimation function (1), (2) and (3) is *Price Increase*, which is calculated as (Price_bribe-Price_nobribe)/Price_nobribe. Those who reject bribe, we take Price_bribe as equal to Price_nobribe. With regard to Function (4), (5) and (6) in Table 11, the dependent variable is *PRICE*, which is the ultimate price settled at the end of experimental session. Since the price first agreed without the offer of bribe is partly based on certain calculus, this price should not be of significant difference across different sessions, and it has been approved above. Thus, the estimation results regarding *Price Increase* and *PRICE*

should not divide, which is consistent with the results we have. In addition, the *BRIBE* represents the share of additional compensation the participant requires from the research assistant. If the session ends up with no cooperation, *BRIBE* equals 0.

We find that *BRIBE* has significant and stable influences on contract price. In the perspective of the participant, the higher the bribe amount he requires, the higher the price that the participant will set. However, this relationship is not linear. The squared term of bribe (i.e. *BRIBE_2*) also exerts significant effects, while its coefficient is negative. It indicates that the positive relationship between bribe amount and price augment is of diminishing margin. After reaching certain threshold, higher bribe amount may not be able to drive up contract price. The procurement person may consider the negative externalities exposed on his company (in this case, on the experimenter) and the possibility of being exposed if the price is settled unreasonably high, even though in theory these treatments are not applied. However, due to the design of the game in this thesis and the limited sample size, it does not allow us to interpret the exact reasons behind.

Overall, with respect to the relationship between bribe amount and contract price (stage 2), our experiment can merely provide a very preliminary finding. It demonstrates that the subjects will not make the most rational choice as in theory, but what exactly the relationship is still requires further efforts. The next section will then illustrate the limitations of this thesis and possible improvements in the future.

E. Limitations and Reflections

Although in this thesis, the design of business negotiation experiment attempts to restore a neutrally framed context, and thereby enhances the external validity of conventional lab experiments in most current literatures, there still exist some problems regarding the design of experiment and the case restoration. The following section will point out these limitations and the possible solutions for future research.

E.1 The design of Experiment

In order to retain the control over the experiment, we use three research assistants, who will take the role of sales person in each negotiation session and serve as the "whistle blower" of the bribery activities. They will propose the idea of cooperation and his willingness to share part of his additional compensation (as bribe). As a consequence, it only allows us to explore the one side of bribery behaviours, the bribe taking. In the future the following designs can be applied to explore both bribe giving and bribe taking although for this thesis, the author is not able to collect enough samples due to the time limitation.

(1) Assign research assistants into both roles, i.e. in the half of sessions, the research assistant will take the role of procurement person, and in the other half, he will take the role of sales person. In each session, the asymmetric compensation rates set will always prefer the sales person; or

(2) Switch the asymmetric compensation rates, i.e. in the half of sessions, the sales person has price advantage, and in the other half, the procurement person is advantaged. In each session, the research assistant will retain the role of sales person.

In addition, the occurrence of bribery is not nature, but always proposed by the research assistant. The underlying reason of this instruction is the fixed-pie

perception, which refers to the tendency among negotiators to perceive own priorities and those of the other party as completely divergent (Schelling, 1960). At the beginning, the assigned missions for the two roles are of distributive competition (i.e. a simple compromise-placing demands or making concessions between two parties), while accepting bribe and cooperate will result in integrative outcomes (i.e. both of the parties obtain satisfied results through exchanging information on preferences and priorities) (Lewicki, Saunders, & Minton, 2000). However, the existence of fixed-pie perception will reduce the possibility for the participants to discover the integrative opportunity. Especially under time pressure, the closing of mind tends to happen, which then leads to freezing upon fixed-pie perception. Thus, it necessary to revise it and let the research assistant propose the bribery, if the cooperation is expected to happen at least in some sessions for the validity of the test (De Dreu, 2003). On the other hand, one may also explore the relationship between the role of asymmetric compensation scheme and bribery occurrence by applying following treatments to the current framed context.

(Tr 1) Symmetric compensation scheme

(Tr 2) Asymmetric compensation scheme, sales person is advantaged;

(Tr 3) Asymmetric compensation scheme, procurement person is advantaged.

For all three treatments, the research assistant will take the role of sales person, but he will not propose the idea of cooperation. In Tr 1, there is no incentive for either of party to bribe; in Tr2, sales person has an incentive to bribe; and in Tr3, procurement person has an incentive to bribe. Thus, by cross-treatment comparison, it is possible to exam whether asymmetric compensation scheme will provoke bribery giving or bribery taking behaviours.

Besides, the participant is required to give the initial offer at 70G, which is the

profit-maximizing choice. Also, this instruction to some extent increases the comparability of prices between different experimental sessions. However, if he anticipates that his counterpart will definitely reject this offer, he will not initiate the negotiation at 70G. Moreover, in each experimental session, the participant can decide the bribe amount they want and the appropriate price he wants to set. In reality, this situation can almost never happen. Thus, the analysis of the relationship between these two factors (stage 2) is very preliminary. It can only be interpreted as how much price the procurement person can sacrifice with regard to the corresponding bribe he desires, just from his own perspective. Thus, future games with enhanced delicate design are necessitated.

E.2 Case Restoration

Despite that this experiment tries to restore the situation of business negotiation, some assumptions and rules are made in order to simplify the experiment. For example, in real world, these two parties will meet several times and will also conduct negotiations with other possible corporate representatives. However, it is really hard to restore exactly this real situation. In our experiment, two paired parties will only meet once and the negotiation session is restricted within 10 minutes. The questions that whether the increasing number of meetings and interactions will change the decision of bribe acceptance still remain to be solved.

In addition, corruption engagement is usually motivated by chasing private interests in real world, while in this experiment, their decisions on bribery acceptance may be influenced by two competing factors: suspicion of the research assistants and "happiness of spending". On the one hand, when the research assistant puts forward an idea that is not expected in the scenario of a business negotiation experiment, it is possible that the participant will suspect it as part of the experiment. The belief and uncertainty concerning the honesty of his counterpart will then reduce the bribe acceptance (Berninghaus et al., 2013). On the other hand, we should also consider the positive influences of "happiness of

spending" on bribery engagement. As asserted by Dunn, Aknin, and Norton (2008), spending money on others may generate more considerable emotion of happiness than spending on oneself. In our case, accepting bribe and cooperating can also be viewed as an alternative approach of spending on others, since cooperation serves as an integrative game and both of them can earn more. In other words, the intention of accepting bribe is not restricted to obtaining more personal gains, but also includes the propensity to "assist" the corresponding sales person to earn more. Therefore, when interpreting the estimation outcomes, these two distorting factors should be taken into consideration.

F. Conclusions

Over last decades, there has been a great amount of research, exploring the factors related to bribery behaviors, and consequences of corruptive activities. In this thesis, we attempt to improve the design of conventional lab experiment, and restore a corruptible situation of business negotiation in an analogous framed field experiment. Based on the asymmetric compensation scheme between the sales person (i.e. the research assistant) and the paired procurement person (i.e. the participant), the research assistant will propose the COOPERATION idea, and thereby the participant will make this ethical decision while unaware of taking part of a bribe-related experiment. Specifically, if they agree to take the bribe and cooperate, the author has to pay higher compensation to her participants while obtaining inaccurate data in their perspective. In that situation, the author serves as the company who will suffer losses when representatives of the negotiation conspire for their own private gains.

In total, we hold 43 experimental sessions with students as subjects. We find that individuals with higher *Conservation* value and lower *Self-Transcendence* value are more likely to accept bribe, while values of *Openness To Change* and *Self-Enhancement* do not exert any significant influences. It may provide some suggestions for companies. For example, personal values and beliefs can be a factor related to unethical decisions, which should be taken into account when recruiting human resources from undergraduate and master students and when devising possible solutions to enhance business ethicality. In addition, in the perspective of the participants, the relationship between the contract price that they can sacrifice for the bribe that they desire is positive, but with diminishing margin. Nevertheless, this result is still in very preliminary phase and suffers some limitations. For example, it only explores bribe-taking side and some experimental settings do not reproduce the real situation of business negotiation. Therefore, it necessitates future efforts to further augment the experimental design.

G. Acknowledgement

First of all, I want to express my sincere thanks to my supervisor, Dr. Mark Kantšukov, who has provided valuable suggestions and helped me on participants' collection. In addition, I also appreciate the feedbacks given by my opponent, Dr. Maryna Tverdostup, which are very detailed and insightful, even for my future progress. Also, my special thanks go to professor Jaan Masso and professor Ricardo Alfredo Mendes Pereira Vicente, who has provided useful advice throughout the whole master thesis development. Moreover, I acknowledge the tremendous support from teachers of Kadi Kaur, Sirje Saarmann and Anneli Kütt, who has helped me to distribute experimental information and reserve rooms for the experiment. Finally, the efforts and kindness of my research assistants, Iris, Sitong and Kamran should never be forgotten. They have contributed a lot of time and energy to conduct the experimental sessions, and without them, this thesis cannot be worked out.

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PARTICIPANTS INDIVIDUAL CHARACTERISTICS

Variables	Measurements	Sources	Description	Questions	Unit
Age				1. Year of brith	years
Gender				1. Male / Female	dummy variable
Education				1. Major and education level	text
Nationality				1. The country where you spent most of your life so far	text
Financial condition				1. How would you describe your current financial condition, considering support from your families and your own income? (a) Reliable and Regular (b) Not reliable (c) I am not sure	dummy variable
Risk aversion	Risk aviodance	Griffin et al. (1996); Donthu & Gilliland (1996)	Attitudes towards risk	1. Taking risks can be fun (r) 2. I would like to drive a racecar (r) 3. I prefer friends who are unpredictable (r) 4. I have considered skydiving as a hobby (r) 5. I sometimes do things I know are dangerous to me (r) 6. I would rather be safe than sorry 7. I avoid risky things	Scale from 1 (does not apply to me at all) to 5 (applies to me all the time); r refers to reversed scale
Beliefs and Values	10 Human Values: PVQ-21 (Portrait Values Questionnaire)	Schwartz (1992, 2012); Europe Social Survey (2018)	Benevolence: *Preservation and enhancement of the welfare of personally frequent-contact people.*	1. It's very important to him to help the people around him. He wants to care for other people. 2. It is important to him to be loyal to his friends. He wants to devote himself to people close to him.	6-point scale: 6 (very much like me), 5 (like me), 4 (somewhat like me), 3 (a little like me), 2 (not like me), 1 (not like me at all)
			Universalism: *Understanding, appreciation, tolerance and protection for the welfare of all people and for nature.*	3. He thinks it is important that every person in the world be treated equally. He wants justice for everybody, even for people he doesn't know. 4. It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them. 5. He strongly believes that people should care for nature. Looking after the environment is important to him.	
			Self-direction: *Independent thought and action-choosing, creating, exploring.*	6. Thinking up new ideas and being creative is important to him. He likes to do things in his own original way. 7. It is important to him to make his own decisions about what he does. He likes to be free to plan and to choose his activities for himself.	
			Stimulation: *Excitement, novelty, and challenge in life.*	8. He likes surprises and is always looking for new things to do. He thinks it is important to do lots of different things in life. 9. He looks for adventures and likes to take risks. He wants to have an exciting life.	
			Hedonism: *Pleasure and sensuous gratification for oneself.*	10. Having a good time is important to him. He likes to "spoil" himself. 11. He seeks every chance he can to have fun. It is important to him to do things that give him pleasure.	
			Achievement: *Personal success through demonstrating competence according to social standards.*	12. It is very important to him to show his abilities. He wants people to admire what he does. 13. Being very successful is important to him. He likes to impress other people.	
			Power: *Social status and prestige, control or dominance over people and resources.*	14. It is important to him to be rich. He wants to have a lot of money and expensive things. 15. It is important to him to be in charge and tell others what to do. He wants people to do what he says.	
			Security: *Safety, harmony and stability of society, of relationships, and of self.*	16. It is important to him to live in secure surroundings. He avoids anything that might endanger his safety. 17. It is very important to him that his country be safe from threats from within and without. He is concerned that social order be protected.	
			Conformity: *Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms.*	18. He believes that people should do what they're told. He thinks people should follow rules at all times, even when no-one is watching. 19. It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.	
			Tradition: *Respect, commitment and acceptance of the customs and ideas that traditional culture or religion provide the self.*	20. He thinks it's important not to ask for more than what you have. He believes that people should be satisfied with what they have. 21. Religious belief is important to him. He tries hard to do what his religion requires.	

Table 4

Participant Script

Dear Participant,

Once you receive this paper, you are involved in a business price negotiation simulation. In this experiment, you play as a procurement person on behalf of your company. The general information is as follow:

This year, your corporation plans to buy some semi-finished product from the sales company. So, you are asked to negotiate with the representative of the sales company on the contract price. You know that the costs of producing this semi-finished product are around 70 Gilbert in market (Gilbert is a virtual currency). It means the sales person from the other company would never make the consensus at lower than G70. Thus, to make it simple, you are required to start the negotiation at a price G70. In addition, the manager has told you that our company cannot sell the final product (which is made from this semi-finished product) higher than G100, at which the firm almost makes no profits. Furthermore, this semi-product is provided only by a few companies. Thus, it is very important for you to make this contract.

Your objective is to set the price as low as possible to help company's earnings. Besides, your compensation for participating in this simulation will depend on contract price you settle with the sales person. Specifically, if you get 1G lower from G100, you will be remunerated *0.2* Euro.)

You must finish the negotiation within the 10 minutes. Otherwise, the negotiation fails and you will only get the show-up fee of 1 euro.

If there is any confusing part, don't hesitate to ask the instructor now.

After the simulation, you need to fill in a questionnaire, but no personal identifications are needed.

Thanks for your time and cooperation, and have a nice experience.

Research Assistant Script

In each business negotiation session, you are required to follow the instructions below:

1. At the beginning of the experiment, introduce your name, nationality.

2. Offer your prices in according to the programmed calculus.

3. Try to settle the first agreed price in the first 5 to 7 minutes.

4. After first price settlement, you start to introduce COOPERATION proposal:

    - After achieving price agreement, you can say: "Ok, now as we have achieved our agreement, I think the experiment has finished. Can I ask what's your compensation rate that we drew from the box? Mine is 2 Euro per Gilbert."

    - After the participant tells his rate, you can say: "oh, compared with you, I am quite lucky. So, with this *price* we agreed, I can earn ((*price*-70)*2) euro, and you can have ((100-*price*)*2) euro, right?"

    - Then, you provide COOPERATION option by saying: "Hey, I just realize that maybe we can cooperate and raise the price higher. Since my rate is much higher than yours, I can earn much more money and you will just lose little. And I can share with you. Both of us can earn more! Why not? I mean, at the end we just need to tell her (the experimenter) a price. It does not matter if we change the price, she doesn't have to know, right?"

5. Afterwards, you let the participant to decide whether to COOPERATE. If he accepts, you can say: "Great, so what price do you think we can make, and how much you want to share? As I have already made some money, I am fine with any suggestions and you can decide."

6. After the participant tells the shares he wants and the price he think you can raise to, you can show the calculations of the final payoffs of you two, and compared them with the payoffs before. This process is to ensure that the participant have got the meaning of COOPERATION.

Codes for Java Eclipse

```
import java.io.FileWriter;
import java.io.IOException;
import java.util.Scanner;
public class Negotiation_nobribe {
public static void main(String[] arg) throws Exception{
FileWriter out=new FileWriter("/Users/apple/Desktop/Experiment
Data.docx",true);
float Procureprice0=0,Procureprice1=0;
double Salesprice=0;
Scanner in=new Scanner(System.in);
do{
System.out.println("Please inp70ut Procurement person's price");
Procureprice1=in.nextFloat();
out.write("Procure price:("+Procureprice1+",)");
out.write("\r\n");
Salesprice=ProcureIn(Salesprice,Procureprice0,Procureprice1);
System.out.println("Sales person's price is "+Salesprice);
out.write("Sales price:"+Salesprice);
out.write("\r\n"); Procureprice0=Procureprice1;
out.flush();
}while(Salesprice>=Procureprice1);
out.close(); }
public static double ProcureIn(double Salesprice,float Procureprice0,float
        Procureprice1){ float x;
        double SalesP = 0;
        int i;
        if (Procureprice0==0&&Procureprice1==70)
        { SalesP=100;} else {
        x=(Procureprice1-Procureprice0)/Procureprice0*100;
i=(int)(Math.random()*100);
        if (i>=0&&i<=29){ SalesP=Salesprice*(1-0.8*x/100);
        }
        else if(i>=30&&i<=69){
        SalesP=Salesprice*(1-x/100); }
        else { SalesP=Salesprice*(1-1.2*x/100);}
        }
        return SalesP;
        } }
```

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